

REMARKS/ARGUMENTS

Claims 1, 4, 6-9, 12, 13, 17-20, 22-27, and 43-45 are now pending in the present application, for a total of 21 claims, 3 of which are independent. Please note that the original claim set as filed had a total of 27 claims (3 independent) and the excess claims were paid for at the time of filing, therefore no excess claims fees are due now.

Changes in response to the Office Action mailed 12/7/2009 are described in remarks hereinbelow.

Interview Summary

Two teleconference interviews (11/19/09 and 12/1/09) between Examiner Wujciak and the undersigned Agent Stauffer were conducted, and due to communication difficulties including repeated phone line disconnects, and an extended interruption due to Agent's travel during the Thanksgiving Holiday, the "interview" continued with an email interchange that ended on 12/2/09 without agreement. Relevant portions of the email interchange are incorporated into the present letter to make them of record.

Initially Examiner proposed incorporating claim 17 into claim 1 to place it in condition for allowance. His statement in a follow-up email message was as follows (copied from email):

"The amended claim 1 still reads on Hoe in view of Watkins, Hoe shows v-shaped end hook (figure 5) and Watkins element 98 is considered as shelf which is mounted on top surface of the hook bar assembly.

"To overcome the prior art references, I am proposing to incorporate dependent claim 17 in independent claim 1. Dependent claims 4 and 6 should be deleted because they are considered different embodiment from amended claim 1 with v-shaped end hook."

Applicant preferred not to impose all of the limitations of dependent claim 17 on the more general statement of the invention in claim 1. In light of Examiner's comment about claims 4 and 6, it appeared that the existing claim 1 description of the end hook was not clearly conveying its intended meaning, therefore Agent attempted to inquire about different language that would better convey the meaning, but our phone connection was lost. At the time of the interview, claim 1 read, in part, "...inside walls of the end hook are V-shaped for establishing only two vertical lines of contact between the end hook and the headrest post..." . When unable to re-connect by phone, Examiner emailed a brief message saying:

"after we got disconnected, I tried call back two times and there were no answer. Could you define more about "the two vertical lines of contact" I am not sure what is it."

Agent responded an hour and a quarter later with a detailed explanation, addressing the prior art of Hoe and Watkins, and ending with a proposed amendment to clarify claim 1.

Examiner's email response read as follows:

"Your argument is not persuasive and proposal does not overcome the Hoe's reference since it can be used as 103. Since I gave you more than 2 weeks to respond, I can't give you additional time and I have to send out the final office action."

Agent responded by email with a summary of arguments, but there was no return email, as interview(s) were apparently concluded, and the present final rejection was mailed.

On April 8, 2010 another telephonic interview was conducted by Agent and Examiner. Vertical lines of contact between hook and post were again discussed. No agreement was reached because Examiner stated that *"the hook shape in Hoe's invention has plurality of vertical lines of contact."* This made no sense to Agent or Applicant given that Hoe shows a round vertical post and a hook made of round rod material bent into a J-shape. Given the illustrated configuration, it seemed clear to Agent that there were no "vertical" lines of contact with the post, just a single horizontal semicircular line of contact. (See remarks hereinbelow for later comments by Applicant.) Examiner concluded by saying *"If the applicant amended claim 1 with hook shape being planar, the examiner will search for prior art with hook shape having planar surface"* (quoted from Examiner's Interview Summary mailed on 4/12/10). Again Agent is puzzled by this given that the existing citation of a "wall" making a vertical "line" of contact would require a planar (and vertical) wall. Agent is also confused by this advice to cite a "planar hook shape". Such a citation is very vague, so Agent is left wondering what would actually be 112-appropriate claim language that also meets Examiner's suggestion.

Further Remarks Regarding the Interviews

Regarding the claims 4 and 6 that Examiner stated *"...should be deleted because they are considered different embodiment from amended claim 1 with v-shaped end hook."* It may be noted that 4 and 6 further limit claim 1 to either a "forward opening hook" or a "rearward opening hook". A common understanding of a "hook" on the end of a "hook bar" is to have a

shank extending longitudinally outward from the hook bar plus a finger on the end of the shank that changes direction laterally (but in the same plane) to form a hook that hooks on a bar-like object that passes through the "inside" of the hook in a direction normal to the plane of the hook. If the finger turns back toward the bar (longitudinally inward), then a generally J-shaped hook is formed with the short end of the J being the finger. The J obviously opens longitudinally inward (toward the hook bar), but because the finger doesn't extend inward as far as the shank, there is also a lateral opening. When the hook bar is hooked onto vertical head rest posts at each end hook, then the short "finger" will either be wrapped over the front of the headrest post (i.e., "has a laterally forward opening hook" as in Claim 4), or the short "finger" will be wrapped over the rear of the headrest post (i.e., "has a laterally rearward opening hook" as in Claim 6). It should also be obvious which are the "inside walls" of the hook, and furthermore should be apparent that the inside walls could be "V-shaped". In fact, such a hook is shown in Fig. 5 of Whittaker (US 5673464) that has been cited against the claims in the present office action. Thus Applicant sees no contradiction between claim 1 and either claim 4 or 6.

It should be noted that claim 8 limits the hook (paraphrasing) to being Y-shaped, just like Hoe in Fig. 5, where the "top" of the Y shape is formed from two "finger walls" extending from the end of the "shank wall" just like the top portion of the letter Y has two lines extending (upward and diverging sideways) from the bottom single vertical line "shank" portion. Clearly the inside walls of the Y-shaped hook are V shaped, yet Examiner states on page 3 that *"regarding claim 8, Hoe teaches the end hook has an outward opening hook...but fails to teach the forward finger wall and the rearward finger wall are angled relative to each other."* This rejection seems to show that the definitions of directions relative to a vehicle as previously recited in claim 1 may be confusing. Applicant also realizes that these directions may not be adequate for describing the structure of the claimed apparatus itself, i.e., independent of any installation in a vehicle.

Therefore Applicant has amended claim 1 to clearly present directions and relative positions strictly in terms of the elements of the claimed structure only. (However, some dependent claims concern orientations of the rack elements once the rack is mounted in the vehicle. Those terms are further clarified in the dependent claims as currently amended.)

Amendments in General

Since the presently rejected or objected-to claims all depend from independent claim 1, Applicant has made several amendments to it that are intended to clarify the meaning of terms, elements, and directions. All such clarifications are supported in obvious ways by the description and drawings of the specification, and do not add any new elements to the claims. Applicant believes that the clarifying amendments address Examiner's objections in a way that makes clear features and aspects of the invention that distinguish it as novel and non-obvious versus the prior art.

It may also be helpful in understanding the claims to refer to the drawings and specification as follows:

"Figure 1A is a top view of a vehicle equipment rack removably holding a player type of equipment and **removably mounted in a vehicle** wherein headrests are ghosted for clear viewing of the rack, according to the invention;"

<NOTE Fig. 1A shows a **forward opening end hook** embodiment (direction arrow 20)>

"Figure 4 is a top view of an alternative embodiment of the vehicle equipment rack removably holding the player equipment and removably mounted in the vehicle ...;"

<NOTE Fig. 4 shows a **rearward opening end hook** embodiment (direction arrow 30)>

"Figure 5A is a top view of a portion of a **rearward opening end hook** embodiment removably mounted on a headrest post shown in cross-section...;

"Figure 5B is a top view of a portion of an **outward opening end hook** embodiment ...;

"Figure 6 is a **rear view** of a portion of a **hook bar assembly** removably mounted along with a compression sleeve **on a headrest post (hidden)** of a vehicle seat and headrest (portions shown), according to the invention;"

Claim Rejections - 35 USC 103

Claims 1, 4, 6, 8, 18, and 43-45 have been rejected under 35 USC 103(a) as being unpatentable over Published application 2003/0150892 to Hoe in view of US Patent 6,231,017 to Watkins, and further in view of US Patent 5,673,464 to Whittaker.

The following amendments and discussion are mainly directed toward overcoming rejection of claim 1. Given its allowance, then the remaining claims, being dependent claims, would also be allowable as further limitations. Discussion of dependent claims is thus held off for now.

In the first paragraph of his reading on claim 1, first and last sentences, Examiner cites Hoe's figure 2 as an embodiment of a hook bar assembly wherein "the end hook is biased longitudinally outward and the end hook opens longitudinally outward." In an effort to set the

record as clear as possible regarding claim terms, Applicant notes that actually Hoe's figure 5 shows that embodiment, whereas figure 2 shows the opposite: inward bias and opening.

In the same paragraph, Examiner cites Hoe as showing "the inside walls of the end hook are shaped for establishing only two lines of contact between the end hook and the headrest post." Two important parts of this claim clause are left out, and only one is addressed by other references. The first omission is "V-shaped for establishing..." wherein "V-shaped" is changed to "shaped". Examiner cites Whittaker as having "inside walls of V-shaped configuration" and goes on to state: "...obvious... to have modified Hoe's inside wall with V-shaped configuration as taught by Whittaker **to mount on a rectangular configured object**" (emphasis added). That may be so, but this is not at all what is being described in Applicant's claim 1, wherein the purpose is clearly stated as being "...V-shaped for establishing only two **vertical** lines of contact between the end hook and the headrest post." First of all, headrest posts are known to be either round or rectangular, with the longitudinal axis of the rectangle being co-linear with all other headrest posts, and therefor co-linear with the longitudinal axis of the hook bar assembly. It is not obvious to select a V-shaped hook for hooking on such rectangular headrest posts in view of Whittaker using a V-shaped hook for the purpose of "mounting on a rectangular object" in the way it is shown in Whittaker, whose Fig. 5 shows the V-shape wire hook 124 mounted on the square post 118 with a **corner of the square in the vertex of the V**. Whittaker does not provide any teaching or inspiration for meeting the objective of Applicant's claim which is "establishing only two **vertical** lines of contact between the end hook and the headrest post." Perhaps the reference is cited due to Examiner's presumably inadvertent omission of the word "vertical" in claim 1. Applicant believes that the omitted modifier is an important distinction versus all of the cited prior art.

Because of this interpretation of Examiner's rejection of claim 1, Applicant has spent a great deal of time and effort trying to address, through emailed and interview-stated arguments and proposed amendments, the apparently ignored limitations in this rejection. Both Hoe and Whittaker present spring biased hooks (not clamps like Watkins) that comprise round rod or wire formed into a hook. As such, the inside "walls" are obviously not "vertical", i.e., not parallel to the long dimension of the post that they hook on.

Finally, in a recent interview, after 4 written office actions, Examiner mentioned the need

for structural limitations. From that oblique reference, Applicant now realizes that "vertical" has no distinct meaning in reference to the hook bar assembly when it is described in structural terms independent of its intended use. Similarly, the description of the shelf uses a relative term of "top". Also, the language "for the purpose of..." might be perceived to be a functional, not structural, limitation, even though it was intended to be a "means plus function" limitation. Since Applicant prefers to avoid such, the claims are amended accordingly.

Amendments Responsive to Claim 1 Rejection

The following amendments are made to avoid functional limitations and to use structural limitations mainly independent of environment and use. Although the amendments appear to be extensive, they do not introduce any new material into claim 1 or other claims, and they narrow its scope by being more specific and precise in reciting claim elements using **structural** language rather than functional. (I am now adding a few non-limiting functional "thereby" clauses for the purpose of helping the reader to understand how the cited elements address the objective stated in the preamble.)

In the preamble, deleted the definitions because they're confusing and no longer needed now that Applicant defines the basic structure independently of the environment.

In claim clauses, words added to define "longitudinal" relative to the hook bar assembly's overall shape. The shelf is now described in terms of specific location and orientation relative to the hook bar (supported by the drawings and spec as cited above).

End hook description has been modified to cite "planar inside hook walls" to incorporate Examiner's suggestion. Further, the planar wall are cited as being "fixed orthogonal to the plane of the attached equipment support shelf" (supported by drawings/spec as above). This is much more definite than the previous "vertical" walls, and "horizontal" shelf.

The clause about spring biasing has wording added to make clear that the effect of the shapes and bias is to bias the vertex of the V against the vertical post, obviously trapping it in the narrowest possible part of the V-shape. This of course will result in the desired vertical lines of contact. Further implications of the cited design are spelled out in the concluding "thereby" clauses (added for clarity, even if not limiting).

Dependent Claim Amendments

Mainly for the sake of consistency, various dependent claims have been amended to make their terminology agree with the new phrasing of claim 1.

Claims 4, 6, and 8 are additionally amended to make clear any directions that must be stated with reference to the rack orientation when installed (mounted). These claims cover three important variations of the hook: forward facing J, rearward facing J, and longitudinally outward opening Y.

Claims 43-45 are similar claims except less limited in shape. Similar amendments are made as appropriate.

Allowable Subject Matter

Applicant appreciates the allowance of claims 7, 9, 12, and 13 and therefore has not amended them herein.

Since 7 and 9 are independent, but are positioned between claim 1 and other claims that depend therefrom, Applicant suggests an examiner's amendment to reposition claims 7, 9, 12, and 13 at the end of the claims as they are finally listed.

Claims Objected To

The Examiner has stated that claims 17, 19-20, and 23 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant would like to wait for Examiner's decision on the allowability of currently amended independent claim 1 before rewriting the remaining objected-to claims (17, 19, and 20) to make them allowable. Thus they are not currently amended.

Discussion Made of Record

The following is copied from emailed remarks by Applicant, and is hereby made of record....

Viewing fig 3B in the context of fig 1A, it can be seen that the top-mounted shelf 101, especially when loaded with a DVD player 200, presents a cantilever load that results in a rolling force (torque) around the longitudinal axis of the hook bar assembly 130. A structural element that distinguishes between the present rack and those of the prior art such as Hoe and Watkins is whatever structure is employed to deal with such a problem – stability of the shelf.

- Hoe's hooks are apparently formed from round rods and have rounded

inside walls that therefore contact the (vertical) headrest post at two points, or at best a **horizontal** line of contact **if** the inside wall of the U-shaped hook 11 of Hoe's fig 1 happens to have the same radius of curvature as the post 7. Hoe's hooks will allow the bar 14 to roll under rotational force, however this is not a problem for him since he doesn't have a shelf or any other type of loading that will present a torque that must be resisted.

- Watkins has a torsional load to resist (figs 2-4), but solves the problem by not using a hook, rather he screw-clamps the horizontal support bar to the headrest post to prevent rolling or any other type of instability.

Neither of these approaches are suitable for the inventive rack which must hold the shelf in a stable horizontal position while in use, and must be easily and quickly removed from the headrest posts. For simplicity, **the inventive design uses only the interaction of the hook bar and the headrest posts (and the seat back) to achieve stability for the shelf.**

Fig 5A shows an embodiment wherein a V-shaped hook opens longitudinally "inward" (toward the shelf and center of the hook bar). Fig 5B shows a second embodiment wherein a V-shaped hook opens longitudinally outward. Fig. 6 (and 3A, 3B) show that the hooks have significant vertical dimensions, and the specification details that as a result two vertical lines of contact are formed between the vertical faces of the hooks and the vertical post. It is these vertical lines of contact that provide sufficient leverage to resist the torque imposed by the cantilever load on the shelf.

If the present claim wording does not provide sufficient structural limitation to make the invention clear, I would like to consider further amendments to claim 1, most likely to the third clause.

- how about something like the following amendment:

<clause 3> "...headrest; and further wherein two inside walls of the end hook are vertically planar and fixed relative to each other at an acute horizontal angle to form V-shaped inside hook walls, for thereby establishing only two vertical lines of contact between the end hook and laterally opposed sides of the vertical headrest post for resisting torque about the longitudinal hook bar assembly axis;

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<should I move the rectangular cross-section clause up to before this one (to help in understanding)

??held in the acute angled hook between the vertical planar walls by the spring bias;"

Conclusion

The undersigned Agent of Record has made a sincere effort to amend the claims of this application in response to the present Office Action so that they define novel structure which is non-obvious. Favorable re-examination and consideration are respectfully requested. If there are still some issues to be resolved, the Examiner is invited to contact the undersigned.

Due to the history of misunderstandings, Applicant respectfully requests an Interview concerning the present amendment before first office action.

Respectfully submitted,

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